

What is claimed is:

1. A purifier to purify exhaust gas, comprising:

(a) a case having an inlet and an outlet;

(b) a plurality of thin plates disposed in said case, said thin plates being arranged at predetermined intervals, and each of said thin plates having at least one through-hole;

(c) a catalyst held to each of said thin plates;

said catalyst having a function of purifying the exhaust gas;

(d) partition plates disposed between the respective thin plates,

said partition plates partitioning the spaces between the respective thin plates; and

(e) a catalyst heater to heat each of said thin plates,

wherein the exhaust gas enters into said case from said inlet, and passes through the spaces formed between the respective thin plates, and each of said through-holes, and is exhausted from said outlet.

2. The purifier of claim 1,

wherein said through-hole and said partition plate are disposed in such positions that the exhaust gas is circulated through each of the spaces.

3. The purifier of claim 1, further comprising:

a pipe;

wherein said exhaust heater is installed in said pipe; and
said plurality of thin plates are fixed around said pipe.

4. The purifier of claim 3,

wherein each of said thin plates is made of metal, and
said pipe is also made of metal.

5. The purifier of claim 1,

wherein the catalyst has a function of deodorizing the
exhaust gas.

6. The purifier of claim 1,

wherein said case has a cylindrical shape.

7. The purifier of claim 1,

wherein said partition plate is bonded to each of said thin
plates.

8. The purifier of claim 1,

wherein said partition plate is formed by cutting and
raising said thin plates.

9. The purifier of claim 1,

wherein each of said thin plates is substantially circular in shape, and

said case is substantially cylindrical in shape.

10. The purifier of claim 1, further comprising:

a wire netting disposed along the periphery of said thin plates.

11. The purifier of claim 10,

wherein said wire netting holds other catalyst.

12. The purifier of claim 1, further comprising:

a heat insulating material disposed between the circumference of said thin plates and the inner wall of said case.

13. The purifier of claim 1, further comprising:

a radiation fin disposed in said case,

wherein said catalyst heater is installed piercing through said radiation fin.

14. The purifier of claim 13,

wherein said radiation fin holds a further catalyst.

15. The purifier of claim 1, further comprising:

a honeycomb catalyst disposed in said case,
wherein the exhaust gas passes through said honeycomb catalyst.

16. The purifier of claim 1,
wherein each of said thin plates has irregularities formed on the surface of same;

the catalyst is disposed on the irregular surfaces; and
the exhaust gas comes in contact with the irregular surfaces having the catalyst while passing thereon.

17. The purifier of claim 1,
wherein said partition plate includes a plurality of partition plates;

said through-hole includes a plurality of through-holes;
a plurality of spaces partitioned by said plurality of partition plates are formed between the respective thin plates;
the spaces are connected to each other by said through-holes; and

the exhaust gas enters into said case from said inlet and is circulated separately passing through respective ones of said spaces and said through-holes and is exhausted from said outlet.

18. The purifier of claim 17,

wherein each of said through-holes is formed radially from the center of said thin plate, and each of said partition plates is also formed radially from the center of said thin plate.

19. The purifier of claim 17,

wherein said catalyst heater includes a plurality of catalyst heaters, and

said plurality of catalyst heaters are disposed piercing through said plurality of thin plates so that each of said catalyst heaters goes through each of the spaces.

20. The purifier of claim 19, further comprising:

an external radiation fin,

wherein at least two out of said catalyst heaters have a U-shaped bend portion and straight portions formed at either end of the bend portion;

each of said straight portions is disposed piercing through said thin plates;

said bend portion is located outside said case; and

said external radiation fin is installed at said bend portion.

21. The purifier of claim 19, further comprising:

an external radiation fin,

wherein said plurality of catalyst heaters include a first

catalyst heater and a second catalyst heater;

said first catalyst heater includes a U-shaped first bend portion and two first straight portions formed at either end of said bend portion;

said second catalyst heater includes a U-shaped second bend portion and two second straight portions formed at either end of said bend portion;

each of said straight portions is disposed piercing through said thin plates;

each of said bend portions is located outside said case;

said external radiation fin is installed at each of said bend portions;

said first bend portion and said straight portions of said first catalyst heater are heated; and

only said second bend portion of said second catalyst heater is heated, and said second straight portions are not heated.

22. The purifier of claim 1, further comprising:

a temperature detector disposed near said inlet,

wherein said temperature detector has a function of detecting the temperature of said catalyst heater and stopping the power supply to said catalyst heater.

23. The purifier of claim 1, further comprising:

an outlet pipe disposed at said outlet, and

a suction fan attached to said outlet pipe.

24. The purifier of claim 1, further comprising:
an inlet pipe disposed at said inlet, and
a heater disposed at the periphery of said inlet pipe.

25. The purifier of claim 1, further comprising:
an inlet pipe disposed at said inlet;
an outlet pipe disposed at said outlet; and
a low-temperature catalyst that functions at a lower
temperature as compared with the catalyst mentioned earlier,
wherein the low-temperature catalyst is disposed in at
least one of said inlet pipe and said outlet pipe.

26. The purifier of claim 1,
wherein said catalyst heater is disposed piercing through
said thin plates.

27. A garbage disposer capable of purifying exhaust gas,
comprising:

a storage section to store garbage;
a main heater to heat said storage section; and
a purifier connected to said storage section,
wherein said purifier comprises the purifier of claim 1.

28. The garbage disposer of claim 27,
wherein said purifier includes a temperature detector, and
when said temperature detector detects abnormal combustion
in said purifier, the operation of at least one of said main
heater and said catalyst heater is discontinued.

29. The garbage disposer of claim 27,
wherein said purifier further comprises a pipe,
said catalyst heater is installed in said pipe;
said plurality of thin plates are fixed around said pipe;
said through-hole and said partition plate are disposed in
positions such that the exhaust gas is circulated through the
spaces;
said thin plates are made of metal;
said pipe is also made of metal; and
the catalyst has a function of deodorizing the exhaust gas.

30. The garbage disposer of claim 27,
wherein said partition plate is bonded to each of said thin
plates.

31. The garbage disposer of claim 27,
wherein at least one of said partition plate and said
through-hole is formed by cutting and raising said thin plate.

32. The garbage disposer of claim 27, further comprising:
wire netting disposed along the periphery of said thin
plates; and

a heat insulating material disposed around said wire
netting,

wherein each of said thin plates is substantially circular
in shape;

said case is substantially cylindrical in shape; and

said wire netting and said heat insulating material are
disposed in said case.

33. The garbage disposer of claim 27,

wherein said partition plate includes a plurality of
partition plates;

said through-hole includes a plurality of through-holes;

a plurality of spaces separated by said plurality of
partition plates are formed between the respective thin plates;

said spaces are respectively connected to said through-
holes;

the exhaust gas enters into said case from said inlet, and
is separately circulated passing through respective ones of
said spaces and said through-holes and is exhausted from said
outlet.

34. The garbage disposer of claim 27,

wherein said purifier further comprises:
an inlet pipe disposed at said inlet;
an outlet pipe disposed at said outlet;
a low-temperature catalyst that functions at a lower
temperature as compared with the catalyst mentioned earlier;
and
said low-temperature catalyst is disposed in at least one
of said inlet pipe and said outlet pipe.